

Quantitative somatosensory assessments in persistent pain following groin hernia repair: A systematic review*

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Background & Aims

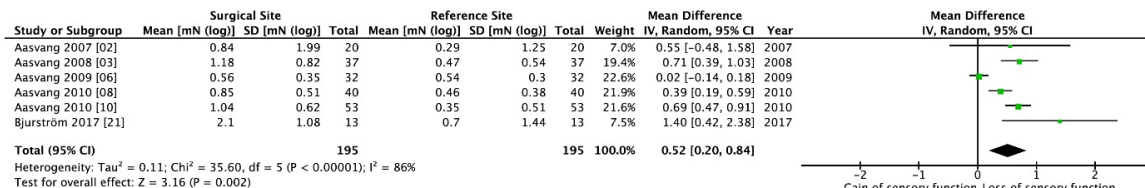
Quantitative sensory testing (QST) provides an assessment of tissue sensitivity and pain perception. Approximately 3-9% of individuals undergoing groin hernia repair develop persistent post-surgical pain (PPSP). The aims of the review were:

- to methodologically characterize the available QST literature in PPSP
- to explore the significance of QST in explaining the pathophysiological mechanisms underlying PPSP

Method

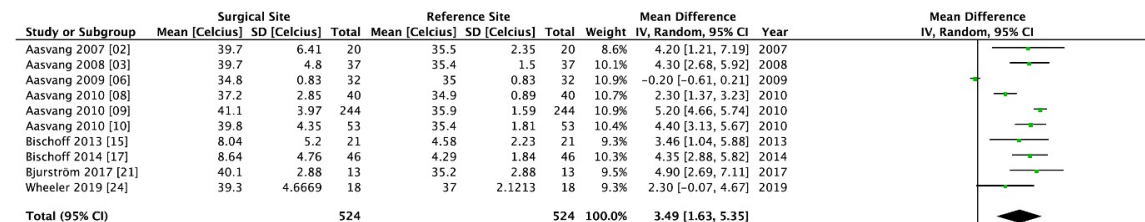
- * Systematic review
- * PRISMA guidelines
- * PROSPERO # CRD42022331750
- * PubMed, EMBASE, and Google Scholar
- * Risk of bias assessments:
 - Newcastle-Ottawa Scale
 - Cochrane's RoB tool 2.0
- * Random-effects model in the meta-analyses

* Dubayev A, Jensen EK, Andersen KG, Bjurström MF, Werner MU. PLOS ONE. 2024;19(1):e0292800.



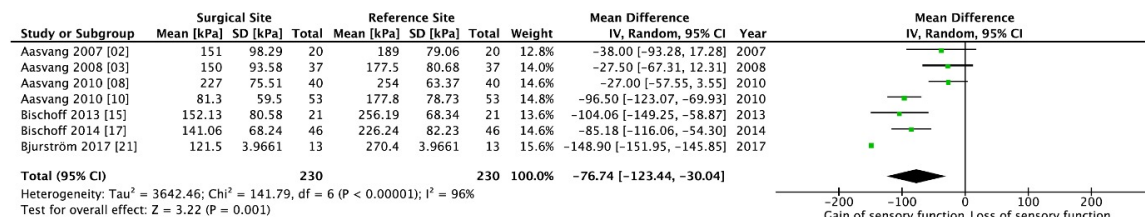
MECHANICAL DETECTION THRESHOLD

DEAFFERENTATION



WARMTH DETECTION THRESHOLD

DEAFFERENTATION



PRESSURE PAIN THRESHOLD

HYPERSENSITIVITY

Results

Twenty-five studies were included (5 randomized controlled trials and 20 non-randomized controlled trials). Overall, the risk of bias was low. Compared with the contralateral side or controls, there were significant alterations in the somatosensory function of the surgical site in PPSP individuals. Mechanical detection thresholds for punctate stimuli (mean difference (95% CI) 3.3 (1.6, 6.9) mN (P = 0.002)), warmth detection thresholds (3.2 (1.6, 4.7) °C (P = 0.0001)), cool detection thresholds (-3.2 (-4.9, -1.6) °C (P = 0.0001)), and heat pain thresholds (1.9 (1.1, 2.7) °C (P = 0.0001)), were all increased. However, the pressure pain thresholds were significantly decreased (-76 (-123, -30) kPa (P = 0.001)).

Conclusions

The review demonstrates a variety of methods used. The most consistent findings were post-surgical **cutaneous deafferentation** and the development of **a pain generator in the deeper connective tissues**.

